Interventions for Nurse-Related Barriers in Cancer Pain Management

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Purpose/Objectives: To describe the findings and critique the studies of interventions for nursing staff to improve pain management in adults with cancer.

Data Sources: Publications were identified through database searches. Studies that describe interventions to overcome nurse-related barriers in cancer pain management practices were included in this review.

Data Synthesis: Nine studies were found that met the inclusion criteria. All studies were experimental and conducted from 1993–2013.

Conclusions: Increase in knowledge, change of attitudes and behaviors, and good relationships with specialists were found to be influential in overcoming existing nursing barriers to pain management in cancer survivors. Educational interventions are more effective in increasing knowledge than in improving attitudes. Specialists were acknowledged as important resources and role models for nurses, particularly when trust was established between the two.

Implications for Nursing: A number of interventions have been developed to address healthcare provider barriers. However, scarce literature exists on whether interventions that aim to overcome nurse-related barriers have been successful. This literature review provides critical insights on the effectiveness of interventions aimed to overcome barriers to effective pain management by nurses for adults with cancer.

Key Words: cancer; pain; nurses; interventions; literature review

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Pain often accompanies cancer, and an estimated 60%–85% of patients with advanced cancer will experience pain during the disease process (Kwon, 2014). According to the Institute of Medicine ([IOM], 2011), pain affects function and quality of life, increases the use of healthcare resources, and contributes to loss of productivity. Therefore, effective pain management is critical for patients with cancer.

The healthcare system, healthcare providers, caregivers, and patients all play a role in creating barriers to effective pain management. The barriers that affect nurses have been well documented and include inadequate education about pain mechanisms and types of pain medications, the importance of proper pain assessment and documentation, a persistent suspicion about drug-seeking behaviors among opioids users and/or fear of over-sedation, and lack of specialists (Kwon, 2014). In a review of barriers to pain management, Fishman et al. (2013) noted that "inadequate education of health care professionals is a major and persistent barrier to safe and effective pain management" (p. 973). Nurses have inadequate education about how to manage different kinds of pain, how to combine various pain medications, and how to manage side effects such as constipation or nausea. Healthcare providers may be knowledgeable about pain assessment, but the knowledge may not be reflected in their behaviors and actions (Kwon, 2014). For example, nurses may not provide aggressive pain management—even though they know how to—when they are busy with other nursing cares.

Several interventions have been attempted (All & Huycke, 1999; Fishman et al., 2013; Kwon, 2014) to address provider-related barriers—particularly lack of knowledge, negative attitudes, and lack of specialist consultation—in cancer pain management. The initial goal of the current review was to describe studies of interventions aimed at overcoming nurse-related barriers to pain management for older adults (aged 65 years and older) with cancer. However, no studies were found that exclusively focused on nurses who cared for older adults with cancer. Therefore, the purpose of this literature review was to describe the effectiveness of interventions aimed at overcoming barriers in nursing when providing pain management to adults with cancer.

Data Sources

Comprehensive literature searches were conducted, with the help of a medical librarian using the PubMed, CINAHL®, PsycINFO®, Scopus, and ProQuest Dissertation and Theses databases. The following key words

were combined in PubMed: *aged* OR *older adults* OR *elderly* AND *attitude of health personnel* OR *barriers* OR *models* OR *perceptions* AND *nurses* OR *oncology nursing* AND *cancer* AND *pain*. The filter for English language was applied to the search. Slightly different arrangements of the key words were used in other databases because of differences in the engines' search preferences. PubMed returned 180 articles, CINAHL 75 articles, PsycINFO 182 articles, and Scopus 14 articles (none from ProQuest). The abstracts were screened, and final studies were selected by using the following inclusion criteria: (a) the study sample included nurses working in oncology with an older adult population (aged 65 years and older) and (b) the study tested an intervention to overcome a nurse-related barrier to cancer pain management.

Data Synthesis

Study Design

Following these screening criteria, nine publications representing eight interventions studies were identified and systematically assessed by the authors to maintain rigor and quality (see Table 1). Torraco's (2011) recommendations for conducting a review were used, and studies were analyzed for their methods, participants and settings, and the presence of implemented interventions.

All of the studies identified were experimental in nature. Four basic experimental designs were used (Bookbinder et al., 1996; Ferrell, Grant, Ritchey, Ropchan, & Rivera, 1993; Wells et al., 2001); one was a longitudinal, multilevel, randomized, controlled clinical trial (Vallerand, Riley-Doucet, Hasenau, & Templin, 2004); and four were quasiexperimental studies (de Rond, De Wit, Van Dam, & Muller, 2000; de Rond, De Wit, Van Dam, Van Campen, et al., 2000; Gustafsson & Borglin, 2013; Idell, Grant, & Kirk, 2007). The locations in these studies ranged from various acute inpatient settings to outpatient agencies. The postintervention follow-up period varied from immediate to one year.

Sample and Setting

All participants were nurses working with adults with cancer. The sample sizes in the studies ranged from 18 (McMillian, Tittle, Hagan, & Small, 2005) to 1,210 (Bookbinder et al., 1996). Demographic characteristics of nurses participating in all nine studies varied. The mean age ranged from 32.8–50 years. The majority of the nurses were women, ranging from 81%–100% in the studies. The majority of the nurses were BSN prepared, with a mean of 51.5%, and the average number of years in nursing ranged from 5–20 years. Five studies were conducted in the United States (Bookbinder et al., 1996; Ferrell et al., 1993; Idell et al., 2007; McMillan et al., 2005; Vallerand et al., 2004), and the others in Sweden (Gustafsson & Borglin, 2013), the Netherlands (de Rond, De Wit, Van Dam, & Muller, 2000; de Rond, De Wit, Van Dam, Van Campen, et al., 2000), and the United Kingdom (Wells et al., 2001).

Types of Interventions

Two types of interventions were identified in the studies. Two (Gustafsson & Borglin, 2013; Vallerand et al., 2004) of the nine studies had control groups, and the remaining seven studies delivered their interventions to all participants. The first type of intervention was an educational program to improve pain management (Bookbinder et al., 1996; de Rond, De Wit, Van Dam, & Muller, 2000; de Rond, De Wit, Van Dam, Van Campen, et al., 2000; Ferrell et al., 1993; Gustafsson & Borglin, 2013; McMillian et al., 2005; Vallerand et al., 2004). The second type of intervention combined pain education with a change leader or a role model (Idell et al., 2007; Wells et al., 2001).

Educational Interventions

Seven studies tested five different models of education regarding cancer pain. Two studies employed an intervention that consisted of two approaches to a multi-day, intense course to train pain resource nurses (PRNs) to lead and exemplify proper pain management (Ferrell et al., 1993; McMillian et al., 2005). The Power Over Pain (POP) model was employed to overcome barriers to pain management in homecare nurses (Vallerand et al., 2004). The Pain Monitoring Program was used to see the differences in nurses' communication, assessment, documentation, pain knowledge, and attitude (de Rond, De Wit, Van Dam, & Muller, 2000; de Rond, De Wit, Van Dam, Van Campen, et al., 2000). The Pain Management Program aimed to shape structure, increase knowledge, and help with problem solving (Bookbinder et al., 1996). Lastly, the Theory of Planned Behavior (TPB) (Gustafsson & Borglin, 2013) provided the framework of an educational intervention that tested changes in knowledge and attitudes in nurses. The Pain Monitoring Program, the Pain Management Program, and TPB-based educational intervention were similar in combining pain knowledge components and proper pain assessment practices. The POP enhanced education and nurses' assertiveness and improved their skills as patient advocates when working in homecare settings.

Educational Interventions With a Role Model or Change Leader

Two studies in the current review used an approach of implementing pain education and a change leader or role model simultaneously. One study used an application of research utilization model under the

Table 1. Comprehensive Review of Studies

Study	Methods	Sample and Setting	Design	Outcomes	Findings
Bookbinder et al., 1996	Quasiexperimental design; follow-up was in two years for knowledge outcome measures and three years for specific CQI	1,210 participants; mean age of 32.8 years (SD = 8.9) and 97% female; mean years in nursing of 8.5 (SD = 8.1) and mean years in a hospital of 5.7 (SD = 5.3); 30% had a BSN, 51% had a master's degree, and 19% had a doctoral degree Setting: 12 inpatient units at a 565-bed tertiary care center	The pain management program addressed structure, education, and a systematic method for problem solving.	• NPKA • Focus groups • CQI	NPKA: Statistical significance was seen in visible documentation of pain and pain relief and unit-based education for nurses. A positive increase was found in all 46 items, with a greater than 5% increase for 20 (44%) of the items. Focus groups identified two of the highest barriers, including managing complex patients and the fear of causing harm in medically compromised patients, particularly those with decreased respirations.
de Rond, De Wit, Van Dam, & Mueller, 2000	Quasiexperimental design with a nonequivalent group; follow-up was at one month	216 participants; mean age of 34.6 years (SD = 8.9) and 81% female; 10.5 years of experience (SD = 8.2); 69% were RNs and 31% were RNs with specialized continuing education Setting: Three Dutch hospitals with two surgical wards and one medical ward in each	A three-hour PMP educational session and implementation of daily pain assessment	• Quality of nurses' pain assessment (range was +1 for overestimation and –1 for underestimation) • Pain documentation	Numeric rating scale: Prior to PMP implementation, patients gave a score of 2.9 (SD = 2.5) and nurses a score 3.3 (SD = 2.4) ($p < 0.001$). After PMP, levels of agreement between patients' and nurses' ratings of the patient pain intensity increased from 44% in the control group to 68% in the intervention group ($p < 0.01$). Overestimation, 18%, as well as underestimation, 14%, declined in the intervention group compared to the control group. Pain documentation: After PMP, the mean documentation score significantly increased for pain intensity ($p < 0.001$), pain location ($p < 0.05$), and pain duration ($p < 0.05$). The total mean documentation and the mean documentation per day also increased after implementation of the PMP ($p < 0.01$ and $p < 0.05$, respectively).
de Rond, De Wit, Van Dam, Van Campen, et al., 2000	A quasiexperimental design with a nonequivalent group; follow-up was at six months	216 participants; mean age of 34.6 years (SD = 8.9) and 81% female; 10.5 years of experience (SD = 8.2); 69% were RNs and 31% were RNs with specialized continuing education Setting: Three Dutch hospitals with two surgical wards and one medical ward in each	A three-hour PMP educational session and implementation of daily pain assessment	• PKQ-DLV (range of 0–100) • Pain attitude inventory, a nine-item questionnaire with a five-point Likert-type scale	PKQ-DLV: Prior to PMP, 69% (SD = 13.2%); post-test, 76% (SD = 11.5%) ($p < 0.001$). Age ($R^2 = 0.08$, $p < 0.001$) and additional pain courses ($R^2 = 0.06$, $p<0.01$) were predictors for pain knowledge. Pain attitude inventory: After the PMP, the proportion of nurses who thought they have sufficient knowledge and skills to relieve pain increased from 58% to 74% ($p < 0.01$). At pretest, 78% believed nurses paid enough attention to patients' complaints of pain; 85% agreed to it after the post-test ($p < 0.05$); 87% of nurses agreed that pain should be assessed on a daily basis and, on post-test, only 77% agreed ($p < 0.5$) (the drop occurred mainly in the surgical nurses).

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BQ—Barriers Questionnaire; CQI—continuous quality improvement; NKAS—Nurses' Knowledge and Attitude Survey Regarding Pain; NPKA—Nurse's Pain Knowledge and Attitude; PC—Perception of Control Over Pain; PCE—pain competency evaluation; PKQ-DLV—Pain Knowledge Questionnaire–Dutch Language Version; PMP—Pain Monitoring Program; PMPKT—Pain Management Principles Knowledge Test; PRDT—Pain Reassessment Data Tool; PRN—pain resource nursing

Table 1. Comprehensive Review of Studies *(Continued)*

Study	Methods	Sample and Setting	Design	Outcomes	Findings
Ferrell et al., 1993	Experimental; follow-up at three months	26 participants; mean age of 38 years; 100% female; 61% had an associates degree, 27% had a BA or BS; mean years in nursing was 9 (range = 2–21); 12% Asian, 4% African American, 69% Caucasian, 12% Filipino, and 4% Hispanic; mean hours worked per week was 37 (range = 10–60)	20 hours of didactic and clinical pain management course for staff nurses. After completion of the PRN training program, staff were available to assist with PRN implementation and any problems encountered	• NKAS • Daily subjective evaluations of the speaker and content • A subjective questionnaire was designed to collect information on role implementation issues and use of pain management knowledge in clinical practice.	NKAS: Pretest average, 58%; post-test average, 74% Daily subjective evaluations of the speaker and content: Participants were pleased with the course and recommended it to other nurses. Subjective questionnaire: 61% of nurses did not see any change in the number of patients in pain under their care or their attitude toward patients in pain. The amount of teaching to patients and coworkers increased. The nurses continued to have problems with coworkers (69%) and physicians (70%) when trying to implement the PRN duties, but most nurses (92%) had a better understanding of how other departments can assist.
Gustafsson & Borglin, 2013	Quasiexperimental design with a nonequivalent control group; follow-up was at 4 and 12 weeks	40 completed initially, 33 in the intervention group and 27 in control; age ranged from 30–40 years and 100% were female; work experience in the intervention group was 10.2 years (SD = 2.4) and 9.4 (SD = 7.5) in the control group; 76% in the intervention group had a degree, whereas 67% did in the control group Settings: Two surgical wards in Sweden that frequently care for patients with cancer	Theory-based educational intervention based on the Theory of Planned Behavior and interactive learning workshops; the introduction and implementation of guidelines for daily and systematic pain assessment using a visual analog scale	• Demographic information • Modified version of the NKAS (range = 0–38)	NKAS: Baseline for intervention was 67 (SD = 11.2) and control was 67.8 (SD = 8.1); at four weeks, the intervention was 73.7 (SD = 9.6) (p = 0.028) and control was 71.8 (SD = 9.5) (p = 0.671)
Idell et al., 2007	Quasiexperimental study; follow-up was at seven and nine months	42 participants; age ranged from 20–60 years with 50% in the age 41–50 group; 38% were Asian and 36% were Caucasian; 93% were female; 43% had an associates degree and 48% had a BSN; mean years in nursing was 14.9, and mean years in the cancer center was 9.3 Setting: National Cancer Institute–designated comprehensive cancer care in the western United States	Research utilization model under advanced practice nurse leadership; individual performance feedback and a review of pain documentation from five charting entries for each nurse with a plan for a unit-specific plan for improvement; and posters on the unit	• Demographic survey tool, which included gender, age, ethnicity, years in nursing, years at institution, education background, and length of time on the current unit • NKAS (range = 0–39) • PRDT (range = 0–11) • PCE (range = 1–4)	Demographic survey tool: The pre-intervention age range with the highest percent reassessment was 41–50 years. The postintervention age range with the highest percent reassessment was 20–40 years. The greatest learning was in the most experienced nurses (26–41 years old) and diploma nurses learned the least, with only 10% improvement. PRDT: Pre-intervention, 61%; postintervention, 78% (p = 0.004) PCE: Pre-intervention, 3.05; postintervention, 3.38 (p = 0.000)

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Table 1. Comprehensive Review of Studies *(Continued)*

Study	Methods	Sample and Setting	Design	Outcomes	Findings
McMillan et al., 2005	Pre- and post-experimental design; nurses volunteered to be PRNs; follow-up was immediately after the course	18 RNs from multiple floors working with patients with cancer; average age was 43.1 years (SD = 10.6) and 89% were female; 17% had an associates degree, 50% had a BSN, and 11% had a master's Setting: A Veterans Affairs hospital in the southeastern United States	For the intervention group, a 32-hour intensive pain management course for PRNs at a nearby university. Pretest was done before the course and post-test after completion of the course.	• PMPKT (range = 0–31) • Nurses' attitude survey (range = 25–100) • The Pain Survey (range = 0–18) • Demographic data such as gender, age, ethnicity, education, shift worked, whether the nurse was an oncology nurse	PMPKT: Pretest, 20.8 (67%); post-test, 24.9 (80%) ($p < 0.001$) Attitudes toward patients in pain: Pretest, 11.8 (66%); post-test, 15.6 (87%) ($p < 0.007$) Nurses attitude survey: Pretest, 66.6; post-test, 69.3 ($p < 0.055$)
Vallerand et al., 2004	A longitudinal multilevel, randomized, controlled clinical trial; 11 agencies were cluster randomized; follow-up was from 4–6 weeks	202 nurses (100 in intervention and 102 in control) from homecare agencies working with patients with cancer; aged 24–71 years, with a mean age of 44.4; 97% were female and 87% were Caucasian; 4% were practical or vocational RNs, 46% had a diploma or an associates degree, 44% had a BSN, 6% had a master's degree; 39% had more than 20 years of nursing experience Setting: Homecare agencies in the midwestern United States	For the intervention group, two Power Over Pain programs 4–6 weeks apart; for the control group, an explanation of the study was provided and offered on intervention after six months in the trial	• Demographic data BQ (range = 0–5 for specific subscales) • NKAS (range = 0–39) • PC (range = 1–7)	BQ: At baseline, intervention was 19.58 (SD = 8.85) and 19.93 (SD = 8.51) at the four-week post-test; control was 19.9 (SD = 8.3) at baseline and 21.25 (SD = 9.08) at the four-week post-test NKAS: At baseline, intervention was 29.29 (SD = 4.74) and 33.44 (SD = 3.38) at the four-week post-test; control was 26.7 (SD = 4.22) at baseline and 28.06 (SD = 3.95) at the four-week post-test PC: At baseline, intervention was 2.67 (SD = 1.65) and 2.43 (SD = 1.54) at the four-week post-test; control was 3.4 (SD = 1.65) at baseline and 3.55 (SD = 1.57) at the four-week post-test
Wells et al., 2001	Qualitative exploratory; follow-up was at one year	103 nurses completed the baseline questionnaire and 79 completed the second set; 75% were female (nurses mixed with doctors) and mean age was 35 years (range = 23–58 years); 30% experienced cancer pain through a friend and 57% through a family member Setting: The United Kingdom	Two questionnaires; a series of teaching sessions and informal teachings when patients were cared for by the palliative team	• Knowledge scores (range = 15–75, with 15 being the best possible score) • Attitude scores (range = 0–99, with 0 being the best possible score)	Knowledge scores: Baseline mean score of 34.58 (SD = 6.14); follow-up mean score of 31.66 (SD = 6.5) Attitude score: Baseline mean score of 22.51 (SD = 10.47); follow-up mean score of 19.37 (SD = 10.76)

BQ—Barriers Questionnaire; CQI—continuous quality improvement; NKAS—Nurses' Knowledge and Attitude Survey Regarding Pain; NPKA—Nurse's Pain Knowledge and Attitude; PC—Perception of Control Over Pain; PCE—pain competency evaluation; PKQ-DLV—Pain Knowledge Questionnaire–Dutch Language Version; PMP—Pain Monitoring Program; PMPKT—Pain Management Principles Knowledge Test; PRDT—Pain Reassessment Data Tool; PRN—pain resource nursing

advanced practice nurse leadership for nurses in acute care settings (Idell et al., 2007), which is a framework conceived to change nurses' behavior in a systematic and organized way. The second intervention evaluated if teaching sessions with the presence and role modeling of palliative team specialists can improve nurses' knowledge and attitudes (Wells et al., 2001).

Outcome Measures

The nine studies measured one or more of four outcomes. The majority of studies used instruments with established validity and reliability. When researchers modified their instruments and/or used new tools, the validity and reliability was established (Gustafsson & Borglin, 2013; Idell et al., 2007; McMillan et al., 2005; Vallerand et al., 2004). All studies measured knowledge and attitudes, and four instruments or modified versions of the instruments were used to measure these concepts. The Pain Competency Evaluation (Idell et al., 2007), the Pain Survey (McMillan et al., 2005), the Pain Attitude Inventory (de Rond, De Wit, Van Dam, Van Campen, et al., 2000), and the Nurses Knowledge and Attitude Survey or its modified version (Gustafsson & Borglin, 2013; Idell et al., 2007; McMillan et al., 2005; Vallerand et al., 2004) were used to assess knowledge and attitudes. Perception of Control Over Pain (Vallerand et al., 2004) measured the sense of empowerment with regard to managing pain. Concordance on pain intensity between patient self-report and nurses' assessment was evaluated by questionnaires (de Rond, De Wit, Van Dam, Van Campen, et al., 2000). Participants rated the helpfulness and value of role models, such as palliative care specialists and pain specialists, for improved pain management (Vallerand et al., 2004; Wells et al., 2001). Pain documentation practices and behaviors were measured with the Pain Reassessment Data Tool (Idell et al., 2007), Quality of Nurses' Pain Assessment tool (de Rond, De Wit, Van Dam, & Muller, 2000), and by a review of pain documentation (Bookbinder et al., 1996).

Impact of the Interventions

Knowledge: All studies measured increased knowledge of pain management scores from pre- to postintervention; however, only four studies reported statistically significant results in knowledge increase (de Rond, De Wit, Van Dam, & Muller, 2000; de Rond, De Wit, Van Dam, Van Campen, et al., 2000; Gustafsson & Borglin, 2013; Idell et al., 2007; McMillan et al., 2005). Two studies looked at subgroups of knowledge questions on the questionnaires to learn where the highest learning and increase in pain competency levels took place and where it did not (McMillan et al., 2005; Wells et al., 2001). After the intervention, nurses' knowledge about pain assessment improved, as evidenced by a closer match of pain scores between patient report of pain and nurse perceptions of their patients' pain (de Rond, De Wit, Van Dam, & Muller, 2000). One study reported that many nurses had little to no formal pain education in their school curricula or clinical practice (Wells et al., 2001).

Attitudes: Four studies reported attitude change reaching statistically significant levels (de Rond, De Wit, Van Dam, Van Campen, et al., 2000; Gustafsson & Borglin, 2013; Idell et al., 2007; McMillan et al., 2005). Although studies found positive changes in attitudes, two studies concluded that attitudes in healthcare professionals are harder to change than knowledge (McMillan et al., 2005; Wells et al., 2001). After the educational intervention in one study, patient reports of the quality of pain education provided by nurses improved; however, this was not the case for older adult patients ($p < 0.001$) (de Rond, De Wit, Van Dam, & Muller, 2000). Vallerand et al. (2004) reported that nurses felt more in control over treating patients' pain and they felt able to provide better pain management after the intervention. Nurses verbalized feeling more empowered and positively evaluated the interventions (Ferrell et al., 1993; Idell et al., 2007).

Role models or specialists: Role models and specialists were found to be highly valuable to nurses in two studies. Wells et al. (2001) found that nurses more than physicians reported satisfaction and valued working with palliative care specialists. In one study, PRNs reported greater empowerment and better understanding of interdisciplinary pain management approaches but still struggled to work efficiently with coworkers and physicians when functioning in this role (Ferrell et al., 1993). Nurses who practiced in inpatient settings and home care also valued access to specialists and resources when dealing with and reviewing complex cases of patients and pain (Vallerand et al., 2004).

Pain assessments and documentation: Three studies evaluated behavior changes in pain assessment, reassessment, and documentation (Bookbinder et al., 1996; de Rond, De Wit, Van Dam, & Muller, 2000; Idell et al., 2007). A notable increased frequency in documentation of pain and pain assessment, particularly for intensity, location, duration, and factors that alleviate or decrease the pain, as well as pain relief measures provided, were found in two studies (Bookbinder et al., 1996; de Rond, De Wit, Van Dam, & Muller, 2000). Another study found pain reassessment frequency and comprehensiveness increased from pre- to postintervention; however, this improvement did not reach statistical significance (Idell et al., 2007).

Discussion

Participants and Aim

All of the studies reviewed included nurses who care for adults of all ages with cancer. The original aim of this

review was to explore the effectiveness of interventions to reduce barriers to pain management in nurses working with older adults with cancer; the inability to accomplish this goal is a limitation of this review.

Design

All studies included in this review were experimental, with a specific intervention implemented and manipulated to influence knowledge, attitude, and/or behavior change. Most studies did not employ randomization, limiting the reader's ability to determine if the intervention was the source of improvements. Only two studies had control groups (Gustafsson & Borglin, 2013; Vallerand et al., 2004). Inadequate sample sizes, attrition pre- and postintervention, or inability to recruit the needed number of nurses limited statistical significance (Bookbinder et al., 1996; Ferrell et al., 1993; Vallerand et al., 2004; Wells et al., 2001). Also, all studies used convenience samples. Most of the participants were self-selected or required to participate (Bookbinder et al., 1996), creating possible selection bias. Some studies used modified versions of tests and/or investigator-developed tools; however, authors reported the validity and reliability of the new instruments (Gustafsson & Borglin, 2013; Idell et al., 2007; McMillan et al., 2005; Vallerand et al., 2004).

Findings

No apparent differences were noted in reported knowledge, attitudes, perceptions, and behaviors between studies that employed an educational intervention only and the intervention with a role model/change leader. The results suggest that knowledge, attitudes, perceptions of role leaders, and behavioral changes as measured by pain documentation and pain reassessment seemed to be positively influenced and changed by various interventions. However, because statistical significance was obtained by a small number of studies, the interventions' effectiveness remains questionable.

Knowledge was easier to manipulate than attitudes. All participants gained knowledge on pain management, as evidenced by increases in scores on post-tests. Attitudes were harder to influence and manipulate. Attitudes (trust, in particular) affected nurses' perception of working with palliative specialists (Wells et al., 2001). However, because many studies did not have control groups, it was difficult to ascertain if the interventions were effective or whether the results were affected by other factors. In addition, all studies implemented different educational programs or approaches and, therefore, limited the ability to compare and contrast the interventions and the results.

Wells et al. (2001) found that nurses were more responsive to learning from a palliative care team and the relationship strengthened the learning processes and, consequently, outcomes. In addition, the authors speculated that teamwork and trust were predictive of the learning by noticing that the palliative care team did not succeed on wards where trust was compromised between team members (Wells et al., 2001). Nurses also positively received the presence of the advanced practice nurse in supporting practice change in pain management (Idell et al., 2007). These findings match recommendations suggested by Kwon (2014) on overcoming barriers in nurses by providing education and the presence of palliative care specialists. Two studies indicated that PRNs could be effectively educated and bring positive change in pain practices for oncology nurses (Ferrell et al., 1993; McMillan et al., 2005). However, the researchers did not evaluate if the presence of PRNs on the unit would bring the same results for other staff nurses as the presence of palliative specialists.

Of nine studies, only three measured behavior change by looking at pain documentation and assessment and reassessment practices. Behavior change and the action it produces is an important outcome measure. As noted by Kwon (2014), a discrepancy exists between what healthcare providers think they know and what they actually practice. Therefore, measuring behavior change is imperative because of practical implications and the importance of obtaining the true picture of providers' pain management practices. Finding only three studies that measured this outcome limits drawing conclusions as to whether the interventions resulted in noticeable positive practice change.

Implications for Nursing

The number of studies that tested interventions for overcoming the barriers in healthcare providers to the provision of more effective pain management is small. Studies adequately powered to test the intervention and use of randomized, controlled designs are needed to confirm if the interventions hold their effectiveness over time and if the results can be replicated. Also, innovative approaches and models are needed to provide new solutions and creative ways to change current practices, attitudes, and beliefs.

The original goal of the current review was to describe provider-related barriers to cancer pain management in older adults. Not even one study reviewed tested interventions designed to address the unique barriers to pain management experienced by older adults with cancer. Because older adults are a growing and vulnerable patient population that will experience pain, they will require effective interventions and models to employ to deal with this issue effectively. Research studies are needed to verify the barriers and evaluate interventions aimed at nurses working with older adults with cancer pain.

Knowledge Translation

Knowledge about pain management in nurses may be improved by educational interventions.

Attitudes about pain management are difficult to change and influence by educational interventions alone.

Role models (i.e., specialists in pain management) are helpful to nurses when trust is established.

Conclusion

Pain in populations of patients with cancer continues to be a major problem. Interventions to overcome barriers to pain assessment and management by healthcare providers are needed. This review summarized findings from nine studies that implemented interventions aimed at overcoming barriers to the provision of effective pain management for patients. The review concludes that available interventions may be effective in knowledge improvement, but not so in changing attitudes. Specialists and role models for pain practices are valuable to nurses, particularly when trusting relationships are established. Finally, interventions that measure behavior changes such as assessment, documentation, and delivery of pain management interventions are needed. Additional research is needed to verify and replicate the findings, particularly in older adults with cancer pain.

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